Space Weather Forecast

Issued on Sunday, 27 March 2022 at 00:49 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of G1/Minor Storm intervals days 1 & 2 (27th & 28th), including potential coronal mass ejection arrival.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low with a single common-class flare from the southeast limb at 26/1540UTC. AR2976 and AR2975 in the northeast form a wider sunspot complex but remain largely stable with only minor changes. The much smaller group AR2974 (which produced the moderate-class flare on 25th) has been inactive and continued to decline.

No Earth directed coronal mass ejections have been observed, though a glancing blow remains possible from a coronal mass ejection originating on 25th.

Solar Wind / Geomagnetic Activity: The solar wind has been relatively stable fluctuating between 380-430 km/s. The strength of the interplanetary magnetic field (IMF), Bt, was mostly weak but with a couple of brief spells at Strong. The north south component Bz strengthened a little throughout, ranging +7 to -7 nT, with no specific trend in orientation. Geomagnetic activity was Quiet to Unsettled (Kp 0-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be Low to Very Low, but with a slight chance (10%) of further isolated Moderate-class flares possible.

Solar Wind / Geomagnetic Activity: The 25th March coronal mass ejection arrival is expected 27/2300 +/- 10 hours, likely with a glancing impact, although some uncertainty. The fast wind of coronal hole 69 is expected to arrive at Earth early day 1 (27th) and persist into day 2 (28th) due to the anticipated CME. Solar winds easing again day 3 and into day 4 (29th and 30th). Quiet to Unsettled geomagnetic activity will soon become Active with a chance of G1/Minor Storm intervals from the arrival of coronal hole 69 during day 1, then again from the arrival of the CME late day 1 or into day 2. Activity likely easing to Quiet to Unsettled days 3 and 4 (29th and 30th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to be at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office

Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	40	10	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.